REPORT

ON

CATTLE QUARANTINE

IN

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REPORT

ON

CATTLE QUARANTINE IN CANADA

FROM

NOVEMBER 1, 1898, TO OCTOBER 31, 1899

(Professor D. McEachran, F.R.C.V.S., V.S. Edin., D.V.S. McGill, Chief Inspector of Live Stock for Canada.)

Sir,—I beg to transmit herewith my twenty-third annual report on the cattle quarantines of the Dominion, and to append hereto the reports of the pathologists, and the inspectors employed throughout the country.

It will be seen that the importation of breeding stock has slightly increased as compared with the previous season, and that the exportations have decreased in both cattle and horses, but increased slightly in sheep.

The decrease in exportations via maritime ports is the result of a diversion of trade to the United States; the enormous demand for Canadian animals for feeding purposes by United States buyers has depleted Canada of young stock for several years back and the shortage is now apparent in exportable animals. The shortage in North-west animals is less than might have been expected when the increased demand to supply the mining camps of British Columbia and the cessation of shipping, owing to the difficulty in obtaining space on ships, due to a large number of vessels engaged in this trade having been chartered as transports for South Africa, are taken into consideration.

It is very gratifying to again report the continued healthfulness of live stock throughout the country, but few outbreaks of disease having called for special investigation.

Tuberculosis is rapidly decreasing. *Hog cholera* occasionally breaks out in old centres, but it is also decreasing and has disappeared almost entirely in several of the hitherto most infected centres. *Glanders* is almost unknown in the older provinces, but still continues to be discovered in Manitoba and the North-west Territories, where, however, it is largely, if not entirely, traceable to importations from the southern side of the international boundary line. *Scab in sheep* is at present unknown to exist in any of the maritime provinces, and to but a limited extent in Ontario. One outbreak occurred near Macleod, Alberta, which was stamped out by the owner voluntarily slaughtering the entire flock. Another flock was similarly dealt with in the Rosebud district, north-east of Calgary. The country may, therefore, be said to be almost entirely free from this disease. No scab was discovered in 62,308 sheep inspected at the shipping ports, and but two sheep were reported as affected by this disease on arrival in England. *Mange in cattle*, I regret to say, exists to a considerable extent among range cattle in Alberta and Assiniboia, but, as will be seen by the reports, the entire infected area is under quarantine and effective measures are being employed to eradicate the disease during the coming season.

The Seventh International Veterinary Congress.—I beg specially to call your attention to the conclusions of the Seventh International Veterinary Congress, held at Baden-Baden in August last, which contain valuable suggestions with regard to prevention of disease, many of which I am happy to say, in so far as they apply to this country, are gratifying endorsations of the established methods of your department, and of recommendations made from time to time, especially with regard to tuberculosis.

I have the honour to be, sir,

Your obedient servant,

DUNCAN McEACHRAN, F.R.C.V.S.,
V.S. EDIN., D.V.S. McGILL,
Chief Veterinary Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

IMPORTATIONS AT QUARANTINE PORTS, MARITIME CATTLE QUARANTINES.

—	Cattle.	Horses.	Sheep.	Swine.	Mules.
Levis Cattle Quarantine, Quebec	227	6	696	9	
St. John, New Brunswick	14	20	61		
Halifax, Nova Scotia		2			
Charlottetown, P.E.I.	7				
	248	28	757	9	

Of these 45 cattle and 83 sheep were for the United States.

IMPORTATIONS FROM UNITED STATES.

—	Cattle.	Horses.	Sheep.	Swine.	Mules.
Sarnia, Ont	34			30	
Windsor, Ont	30	6		27	
Emerson, Man	86		28	51	2
North Portal, N.W.T	646	1,316		756	
Coutts, Alta	15	347	7	3	
Lethbridge, Alta	318	568	103	4	
Nelson, B.C	45	37	8,356	194	
Vancouver, B.C	1,706	288	3,943	391	
Victoria, B.C.	2	423	731	1	7
Grand Forks, B.C.	48	238		123	
	2,930	3,223	13,168	1,580	9

As will be seen by reference to the reports of the inspectors, no disease was discovered in the animals imported from Europe within the dates of this report.

I have much pleasure in reporting that the duties of the quarantine were most satisfactorily conducted by Drs. Couture, at Quebec, Jakeman, at Halifax, Frink, at St. John, and Leckie, at Charlottetown, P.E.I.

EXPORTATION OF LIVE STOCK FROM MARITIME PORTS.

TABLE showing numbers shipped during the past five years.

Year.	Cattle.	Sheep.	Horses.	Swine.
1895	99,606	187,338		
1896	101,502	117,428	11,531	
1897	117,428	62,406	10,651	
1898	111,948	47,050	7,057	
1899	97,014	62,308	4,980	174

SHIPMENTS FROM EACH PORT.

—		Cattle.	Horses.	Sheep.	Swine.
Montreal		89,065	4,866	54,494	
St. John, N.B.		6,777			
Charlottetown, P.E.I.	Great Britain, Bermuda, West Indies, St. Pierre, Newfoundland	1,069	85	6,402	174
Halifax	Bermuda	39	9	456	
	West Indies	21	7	478	
	Jamaica	43	1	418	
	Newfoundland			10	
	Cuba			50	
	United States		8		
	Europe		4		
		97,014	4,980	62,308	174

Table showing number from United States in above :—

	Number.
Cattle	14,006
Horses	1,443
Sheep	8,107

It will be seen that there is a marked decrease in the number of cattle exported at these ports, an increase in sheep, and a decrease in horses. This was anticipated in the report for 1898, owing to an actual reduction in the number of cattle in Canada resulting from the large purchases of stockers by United States feeders.

The following table furnished by the Customs Department shows, for the past year, a slight decrease in the total number and a slight increase in the value of cattle exported from Canada to the United States :—

EXPORTATION OF CATTLE TO UNITED STATES.

	Number.	Value.
For year ended September 30, 1898 :—		
Cattle	88,605	$1,270,869
For year ended September 30, 1899 :—		
Cattle	85,301	1,278,590

It is not difficult to foresee a still further reduction in exportations next year from both Canada and the United States. The breeding of cattle at present does not keep pace with the exportation. Prices must rise and farmers and others should not too readily part with any but fat stock.

I have much pleasure in reporting that no disease of a contagious nature was found in the animals sent to the shipping ports for export.

As will be seen by the inspectors' reports, herewith appended, very few animals were kept back from any cause.

Animals kept back in Montreal—

	Cattle.	Sheep.	Horses.
For actinomycosis	24	..	.
" injuries	10	41	..
" strangles	.	..	4
" influenza	..	..	21

Animals kept back at St. John, N.B.—

For actinomycosis	5	..	..
" injuries	2	..	.
" suspected scab	.	2	..
Total	41	43	25

Of these, except those affected with actinomycosis, the sheep suspected of scab were rejected, but the injured animals and the horses were sent forward after they had recovered.

I have much pleasure in reporting that the duties of inspection were satisfactorily conducted at Montreal by Doctors Baker, C. McEachran and B. A. Sugden; by Dr. J. H. Frink at St. John, N.B., and Dr. Wm. Jakeman at Halifax, N.S.

EXPORTATION FROM MANITOBA AND THE NORTH-WEST TERRITORIES.

The general freight traffic manager of the Canadian Pacific Railway kindly furnished the following table of live stock carried by that company from Manitoba and the North-west Territories from November 1, 1898, till October 31, 1899, for export from Canadian ports :—

	Cattle.	Sheep.	Horses.	Swine.
Manitoba	3,653	193	..	..
North-west Territories	27,005	....	25	6
	30,658	193	25	6

This is a decrease from last year of 2,417 cattle, 1,155 sheep and 3 horses.

Speaking generally of the exportations during the past season, the quality and condition of the stock were much improved, and it is gratifying to find that breeders are beginning to improve their stock by using thoroughbred bulls. This applies in a marked degree to the ranch-bred cattle. Large numbers have been placed on the ranches during the past two summers, and very few of the old range scrub bulls now remain. If stock raising is to be made profitable, the more pure blood that is infused into the cattle the better they will pay. In fact, Canadians need not expect to hold their own with their competitors, especially the Argentine Republic, unless immediate and strenuous efforts are made to improve the breeding of the herds.

SCABIES, MANGE, ITCH.

While of frequent occurrence in sheep and occasionally in horses, this disease is rare in cattle.

It usually appears in the autumn as winter is setting in, reaching its worst stage about February or March, recovery appearing to take place as summer advances. It generally is seen to commence at the root of the tail, neck or shoulders, and often spreads over the whole body. The itching is frequently intense and prevents the animals from feeding or resting, consequently they become emaciated. From the abrasion of the skin by rubbing against fences, buildings, tree or rocks, sores are produced and vessicles form from which a viscid fluid exudes. This fluid dries and forms crusts or scabs, which often become hard, ulcers forming underneath ; the skin thickens and cracks, the hair falls off, and the animals present a not very attractive appearance.

The mites or acari causing this disease resemble cheese mites and, like them, may be seen by aid of a magnifying glass Often when numerous and when the animal is held in bright sunlight they may be seen as minute whitish specks by the naked eye, or they may be transferred with the scab to the surface of black paper, when they will be found in clusters readily visible on the black surface, but they are best seen by the aid of a microscope with a lens of low power.

They belong to the order *Acaridae*, class *Arachnidas*, family *Psoroptes* (Dermatodectes).

The *Dermatodectes Communis* is that usually found in enzootic mange in cattle, and only their discovery should be relied upon to warrant the diagnosis. While several other conditions will produce loss of hair *(Alopecia)*, it requires the actual presence of the acari to constitute the mange.

We are indebted to the late Professor Gerlach, of Berlin, for much valuable research work on the life history of these parasites. 'They deposit their ova on the skin ; when seven days old, the acari are ready for procreation, and probably about the twenty-third day a second generation appears.' Gerlach makes the following calculation, estimating the product of each female as fifteen and allowing the procreative faculties to be in operation when these are fifteen days old, he gives an increase which affords some idea of the rapidity with which the parasites breed :—

				Females.	Males.
'1st	generation	after	15 days	10	5
2nd	"	30	"	100	50
3rd	"	45	"	1,000	500
4th	"	60	"	10,000	5,000
5th	"	75	"	100,000	50,000
6th	"	90	"	1,000,000	500,000

'Thus a male and female will produce 1,500,000 descendants in about three months.'—*Fleming's Sanitary Science and Police.*

It takes fourteen to sixteen days from the date of transference of the acari to the skin before any marked symptoms are noticeable. Therefore, treatment should be commenced as soon as the disease is discovered. We also learn from this that dipping or dressing should be repeated at least within fifteen days so as to kill the fresh crop before they commence breeding.

The disease spreads readily by the cattle rubbing against one another, whereby the acari or the eggs on the diseased animals are transferred to the hair or skin ; also by rubbing against a fence, post, tree, rock or wall where an infected animal has previously rubbed.

The hands, clothing, halter, rope, or anything that by contact has attached to it the parasites or their eggs, may spread the disease.

The treatment being followed in the present epizootic outbreak in Alberta consists of immersion in a solution of impure carbolic acid, quick lime, carbonate of soda and

soft soap (a modification of Zundel's prescription for sheep scab*). A tank leading from corrals with an incline into and out of the plunge bath and a dripping pen and chute at the other side, is so constructed that when in proper running order from 600 to 800 a day can be dipped.

MANGE IN CATTLE ON ALBERTA RANGES.

On February 10 last Inspector Wroughton, D.V.S., N.W.M.P., Macleod, Alberta, reported the prevalence of a cutaneous affection existing extensively in range cattle in the Little Bow and Lethbridge districts, as well as in the Maple Creek district. Again, on February 28, he reported as follows :—'Since writing you I have made further investigations and discovered the existence of true parasitic mange.' On March 21, Dr. Wroughton mailed a portion of skin and a slide, showing the acari mounted. At the same date, a letter was mailed from a ranch proprietor reporting having 'received information from the manager that mange or skin disease existed among the cattle; that there was a good deal of it, and that they thought some of it at least was the mange,' and asking 'what treatment has been found efficacious.'

On March 24 I addressed a somewhat lengthy communication on the subject to the secretary of the Western Stock Growers' Association, suggesting that a circular letter be issued to the stockmen informing them of the existence of this contagious disease and of the damaging effect it had on cattle, preventing them from thriving during the summer and resulting in the death of many during the winter, and stating that it was the duty of every cattle owner to give all the assistance in his power towards its extermination. In the communication referred to were also prescriptions and directions for the treatment of the cattle for embodiment in the proposed circular.

I also addressed a similar letter to the president of the Western Stock Growers' Association, to which he replied that a prominent stockman expressed an opinion that it was not mange, but Texas itch, which would disappear during summer. In reply to this, I sent the following letter :—

'D. W. Marsh, Esq.,
'President Western Stock Growers' Association,
'Calgary, Alberta.

'Dear Marsh,—I have your letter of April 6 with reference to the disease of mange in cattle. I observe that Mr. Andrews and others express the opinion that the disease is not mange due to a parasite, but what has long been known as "Texas itch," which I describe in my report just about to be issued as "Alopecia," or baldness, due to a variety of causes.

'We have been in the habit of seeing this condition among range cattle occasionally, ever since I have been in the business. This disease, however, is a true mange, and the acarus has been demonstrated both by Dr. Wroughton, Fort Macleod, and by ourselves here in Montreal. There is no question whatever as to the parasitic nature of the disease; nor of its serious character.

'In a letter which I received from D. Warnock, M.R.C.V.S., local manager of the New Walrond Ranch Company, who, as you know, is a veterinarian of considerable experience, in writing to him for his opinion of the reports which were reaching me through the Department of Agriculture from the outposts of the Mounted Police, he replied :—

'"A great many of the cattle in the Lethbridge district are affected with mange, and during the severe weather in February numbers of young cattle and even three year old steers died. We have had a few cases of mange here among cattle we brought from Lethbridge last June, but have cured them by frequent applications of sheep dip. Something will have to be done in the way of stamping out mange, or it will cause

* This, if necessary, can be made more effective by the addition of tobacco juice as recommended by Prof. Ostertag, of Berlin.

serious losses in winter. All of our affected animals would have died if they had not been taken in and treated. Affected cattle rub themselves raw, and are pitiful looking objects in cold weather.

'You will thus see that the matter is one requiring immediate and active attention from the association, and, as a matter of fact, it is encumbent upon us to deal with it from the health-of-animals standpoint, and I intend to recommend that a mounted police constable, and staff-sergeant accompany each of the roundup parties, so as to make sure that these cattle are properly attended to.

'I intend to get to Alberta as early in May as possible, and will probably ask you to call a meeting for the purpose of considering how best to deal with this matter, with least inconvenience to the stockmen. It is more than probable that we may have to prevent cattle belonging to the northern ranges found in the Lethbridge district being taken back to their own ranges, for fear of extending this disease on these ranges.

'I trust that the suggestions which I have already made will be carried out, as near as possible to the letter.

'It may possibly be necessary for some joint arrangement to be made to collect all these mangy cattle into one herd and to herd them by themselves in some place where proper dipping and dressing arrangements can be provided for attending to them.

'I trust that the meeting will accept the statement of fact, with reference to this disease not being that form of alopecia which disappears when the green grass comes, as it is not, being a true parasitic disease which must be treated by some application which will destroy the parasites.

'The postscript to your letter is somewhat alarming, and I trust that when the actual facts are known, a large discount may be taken off the number reported dead. I think it will be found that a very large percentage of these will be found to be cattle brought in from Ontario, known by the stockmen as "doggies."

'Yours very truly,

'(Sgd.) D. McEACHRAN,

'*Chief Inspector.*'

I also handed the following letter to the secretary of the Western Stock Grower's Association, with a request that he send it as a circular letter to each member of the committee of the association, which was done. On the suggestion of two or three members it was also published in the Macleod *Gazette*:—

'Western Stock Growers' Association,
'Office of Secretary-Treasurer,
'Macleod, Alberta, June 1, 1899.

'Dear Sir,—The serious menace to successful stock-raising in the territories through mange in cattle being permitted to exist and extend among the herds, calls for more than ordinary measures being resorted to to arouse in the minds of the cattlemen a full appreciation of its importance.

'I regret to learn from the most reliable sources that this disease exists in cattle owned in Alberta from the boundary line as far north as Mosquito Creek and from the mountains as far east as this territory extends. It also exists in the adjoining territory of Assiniboia.

'It is a mistake to suppose that this is a non-contagious disease or alopecia. It is a true scabies, or mange. It is becoming more prevalent since domestic cattle have been introduced on the ranges in large numbers, because these cattle herd closer together, and hang around buildings and fences, and by rubbing against them readily transfer the acari, or their eggs left on the wood by infected animals having previously rubbed themselves.

'Many animals present a mangy appearance owing to irritation produced by lice; some also from feeding on coarse herbage. These conditions are easily distinguished

from mange. In mange there is considerable irritation about the neck, root of the tail, and in bad cases it may extend over the whole body. By rubbing against fences, trees or rocks the skin becomes abraded and sores form, which become covered by thick scabs, the skin wrinkles and the hair falls off. As a result of this constant irritation they feed but little, become emaciated from want of rest and sleep, and thus are unable to live through the winter and many die.

'The suggestion that every owner should bring his infected cattle to his home ranch, if carried out would most assuredly extend and perpetuate the disease, by infecting corrals, buildings and fences, as well as by direct contact with healthy animals, besides it would be a very troublesome and expensive method, nor could it be relied upon as effective, as it is well known that many cattlemen are at times not as careful as they ought to be. Clearly, mutual co-operation is the common sense way of dealing with it. I would suggest that the association assume the expenditure necessary for the erection of a dipping station on the most suitable location, where all mangy animals would be sent to be herded and dipped till cured. This would require the services of three or four men for, say, two months; the dipping vats and corrals would cost, say, $300. No owner would object to pay a fair share of this necessary expense, rather than lose time and go to ten times more expense by attempting to dress them at home. It will be readily understood, also, that those who have no mangy cattle now should be the most desirous of stamping out this contagious disease, knowing that unless it is done their cattle must inevitably be infected sooner or later; consequently, every cattle owner is interested and should contribute towards the expense.

'Another reason why a general combined effort should be made now is, that this being a contagious disease, quarantine measures must be enforced under the "Animal Contagious Diseases Act," the regulations governing which have been communicated to you by the secretary of the association, as applied to sheep scab, and these apply equally to mange in cattle and horses, and you will readily see that such measures, if rendered necessary through the indifference of the stockmen themselves, will be attended by very great inconvenience.

'I trust, therefore, you will attend the meeting called to consider this subject and arrange for the necessary preparations being made, so that advantage may be taken of the round-up to collect into one herd every mangy animal on the range.

'Yours, very truly,

'(Signed) 'DUNCAN McEACHRAN,

'Chief Inspector of Stock.'

After the meeting at Calgary, it was found to be necessary to place all the infected herds under quarantine, which was done by Colonel Herchmer, Commissioner of the North-west Mounted Police, from the Canadian Pacfic Railway track south to the international boundary, and from the Rocky Mountains east to the eastern boundary of Alberta. Subsequently it had to be extended to include Medicine Hat and Maple Creek districts. The following is the Order in Council dealing with this disease:—

AT THE GOVERNMENT HOUSE AT OTTAWA,

FRIDAY, the 14th day of July, 1899.

Present:

HIS EXCELLENCY IN COUNCIL.

Whereas a serious outbreak of mange in live stock exists in the North-west Territories, and it is necessary that prompt and active measures be taken with a view to eradicating the disease,

Therefore, His Excellency, in virtue of the provisions of section 27, chapter 69, of the Revised Statutes of Canada, intituled : 'An Act respecting Infectious or Contagious Diseases affecting Animals,' and by and with the advice of the Queen's Privy Council for Canada, is pleased to make the following regulations, and the same are hereby made and established accordingly, to come into force at once.

1. It shall be unlawful for any person to have in his possession or under his charge an animal affected with the disease of mange without causing it to be treated with some dressing, dipping or remedy for mange.

2. No animal being affected with mange, or animal which has been in contact with other animals suffering with mange, or has been in any field, stable, cow-shed or other premises in which mange is found to exist, shall be allowed to be removed therefrom without a written order from an inspector authorized by the Minister of Agriculture for that purpose.

3. All sheds, outhouses and places used by animals affected by mange must be thoroughly cleansed and disinfected by scrubbing with hot water and carbolic acid—one pound to four gallons—and afterwards whitewashed with hot lime to which chloride of lime—one pound to one gallon—has been added, to a height of at least five feet from the ground or floor.

4. In order to provide for the segregation or isolation or otherwise dealing with animals affected with the disease of mange, a veterinary inspector, or other person appointed by Order in Council, acting under the direction of the Minister of Agriculture, may declare any farm or place, or common, or yard, or any building, where such diseased animals are found, to be an infected place within the meaning of the Act aforesaid.

5. No person whatever, except a veterinary inspector or other person duly appointed as aforesaid, and acting under the direction of the Minister of Agriculture, shall remove any animal from such infected district, and then only for the purpose of carrying into effect the provisions of said Act, under a penalty of two hundred dollars.

6. A veterinary inspector, or other person duly appointed as aforesaid, acting under the direction of the Minister of Agriculture, may make a selection of a particular place or places within or without the limits of an infected district for the purpose, in such cases in which it may be considered advisable, of isolating and segregating such animals as may have been exposed to the disease of mange. Such veterinary inspector, or other person duly authorized, as aforesaid, shall alone have the power to order the removal of such animals as he may consider advisable to or from such selected places.

7. Such duly appointed veterinary inspector or other officer, acting under the directions of the Minister of Agriculture, may, under the provisions of section 13 of the Act aforesaid, order any animal found to be affected with mange, or in contact with animals so affected, to be slaughtered.

8. Any market, or railway yard, or pen, or wharf, or part or parts of such, or other place where animals are exposed for sale, or where, or in which they may be placed for the purpose of transit for removal to market, or from any province or territory, for the purpose of exportation, shall, in the event of any animal affected with the disease of mange being found therein by a veterinary inspector, or other person duly appointed by Order in Council, and acting under instructions from the Minister of Agriculture, on a declaration to that effect made by him, be held to be an infected place within the meaning of the Act aforesaid ; no animal being allowed to be removed from such infected place, except on order of such duly appointed veterinary inspector, or other person aforesaid, under a penalty of two hundred dollars.

9. All sheds, outhouses, or places used for animals affected by mange must be thoroughly cleansed and disinfected under the direction of a veterinary inspector or duly appointed person.

10. Any person contravening the provisions of any of the clauses of the above regulations shall, for every offence, incur a penalty not exceeding the sum of two hundred dollars.

11. The Minister of Agriculture is hereby empowered to authorize any of his duly appointed veterinary inspectors to cause any animals suffering from mange to be collected and treated with such dressing, dipping or remedy as may be prescribed by the chief veterinary inspector, all expense of such collection and treatment to be paid by the owners of the animals, and to be a charge against the animals and their owners until such payment be made.

JOHN J. McGEE,
Clerk of the Privy Council.

The disease being more prevalent in the southern district of Alberta, it was decided by the stockmen most interested to proceed with the erection of a dipping station, and preparations were made and the work proceeded with under the direction of Veterinary Inspector Wroughton, D.V.S., of the North-west Mounted Police, assisted by Mr. W. F. Cochrane, Manager of the Cochrane Ranch, and Mr. Howell Harris, Manager of the Circle Ranch, Lethbridge. A suitable location had been procured on the Old Man's River near Rocky Coulee, on government land. Vexatious delays, however, hindered the completion of this work till late in the season, when the roundup work had finished.

A cattle foreman and assistants were hired to receive and herd the cattle, a sergeant and two constables were detailed to see the work carried out, and constables were sent out with the roundups to see that all mangy cattle were gathered and sent to the station, but the gathering was done in a half hearted way, and, as Dr. Wroughton's report shows, only 686 head were subjected to treatment at this dipping station, whereas it was expected that three times that number would have been treated.

By reference to Col. Herchmer's report it will be seen that the total number of cattle quarantined and treated for mange in the Territories, was 2,018, probably less than half the infected.

The existence of this disease and establishment of quarantine increased very considerably the work of the police veterinary inspectors, who, owing to their having to inspect all animals sold in the country, or being exported, were kept busy. I am glad to say that such was the excellence of the service, that scarcely a justifiable cause of complaint occurred. Care was taken that no mangy cattle were allowed to be shipped, but the number of otherwise exportable cattle which were kept back was small.

The effect of the dipping and dressing was to greatly lessen the disease, but as hundreds of infected cattle were left on the range, it is to be expected that the work will have to be done over again and commenced earlier in the season, and gone about more vigorously to accomplish its eradication.

Too much care cannot be given to the cleansing and disinfecting of the corrals, fences, and buildings, by the free application of lime wash, to every five gallons of which a pound of commercial carbolic acid has been added. This with the sun and drying winds of Alberta will in most cases prove efficacious in destroying the *acari* and their eggs left on the wood.

Cattlemen should bear in mind that much valuable and expensive work in dipping and dressing of herds may be rendered useless by leaving even a few infected animals on the range. Every mangy animal, and every animal suspected of being mangy, should be gathered and dressed. Owners will study economy and best serve their own interests by sending every such animal to the dipping chutes, and stockmen and police will fall short in their duty if they fail to gather every diseased and suspected animal.

It is to be hoped that work will be commenced early next spring and that the active co-operation of the stockmen, aided by the Mounted Police and quarantine officers, will result in not one single animal whose skin contains one pair of these fast breeding parasites being left on the ranges.

For further information on the subject see the reports of Col. Herchmer and Police Veterinaries Wroughton, Mathews, Stevenson and Tracy (Appendix to Report of the Hon. the Minister of Agriculture, 1899, No. 37.)

HOG CHOLERA AND SWINE PLAGUE.

I regret to have to report the continuance of this disease in certain localities, chiefly in Ontario.

During the first six months of the year the disease was active in western Ontario, but during the past six months few cases have been reported there.

NUMBER OF FARMS INFECTED.

	Farms.
Western peninsula of Ontario	66
Toronto district	19
Niagara Falls district	5
Ottawa district	54
Berlin "	12
Port Arthur district	4
Manitoba "	11
North-west Territories (Alberta)	4
British Columbia	3
Total	178

NUMBER OF ANIMALS SLAUGHTERED AND AMOUNT OF COMPENSATION PAID.

Actually diseased	2,166	
In contact	2,579	
Total	4,745	$15,048 82.

The details of the operations in this connection will be found in the reports, herewith appended, of the inspectors in charge of the infected districts. Inspector Joseph Kine, County of Kent, reports that the disease under the quarantine measures enforced, is rapidly disappearing. Dover Township, previously the hotbed of the disease had but two outbreaks in twelve months.

With a view of giving the farmers reliable information as to the nature and infectious character of the disease, and to suggest simple preventive measures, the following bulletin was issued and widely disseminated among swine breeders throughout the Dominion. It has had the good effect of simplifying the work of the inspectors, owners of deceased hogs being more alive to the necessity of stringent measures.

FARMERS' BULLETIN.

Hog Cholera and Swine Plague.

The growing importance of the swine industry in Canada, and the prospects of its rapid extension, more especially in Manitoba and the Territories, render it necessary that those now engaged in hog raising, and those about to commence this profitable branch of live-stock breeding, should be informed of the nature of their diseases and especially the measures necessary for the prevention of hog cholera and swine plague, two allied diseases which, in other countries, occasion enormous losses. It is estimated that in the state of Iowa alone, in a single year the losses amounted to from $12,000,000 to $15,000,000. They are preventable diseases, requiring only the exercise of common-sense precautions against the causes which operate in their dissemination. These I have endeavoured to outline in the following pages.

The Minister of Agriculture trusts that the farmers to whom this bulletin is addressed will read it carefully and preserve it for future reference, for their own and their neighbour's information.

HOG CHOLERA.

Hog cholera is extremely contagious and infectious. No other disease is more so; it can be conveyed to healthy swine in an endless number of ways, both by direct contact and intermediary agents, buildings, railways, platforms, wagons, crates, clothing, boots of attendants, &c.

The pathogenic (disease producing) agent is the hog cholera bacillus. This bacillus has been demonstrated to possess different degrees of pathogenic power under different conditions, which are not always equally favourable for its development. Dr. Theobald Smith has shown, experimentally, that the bacilli become more pathogenic the oftener they are passed through the tissues of experiment animals, increasing in virulence up to the twelfth of the series. They will live in water from two to four months, and may remain alive and active in the soil from two to three months.

Our experience goes to support the result obtained by experiments. We know that when the disease first appears in a district it is often so mild, and the usual symptoms so undefined that it is difficult for even men of experience to recognize it as genuine hog cholera, hence we are not surprised to find not only farmers, but often veterinarians, also, protesting that in the absence of the usual text-book symptoms they cannot believe it to be genuine hog cholera.

From his experiments, Dr. Theobald Smith deduces the following conclusions:

'(1.) The chief carriers of the infection are the swine themselves. This disease, having its chief seat in the intestines, a discharge of bacilli from the ulcers of chronic cases, or of such as have survived an attack, may take place long after the subsidence of an outbreak, or after they have changed hands. Infection may be thus carried over in the herd until a new susceptible generation of young pigs appears to continue the losses. Outbreaks occurring without any traceable importation of infection from without, are very probably due to latent infection in the herd itself.

'(2.) The custom prevailing in some parts of the country of not promptly removing the dead hogs, or of allowing them to be gnawed at or even partially consumed by the living, is a potent cause for the perpetuation and strengthening of the infective agent. In such cases the bacilli consumed may cause mild unrecognizable attacks, with discharge of bacilli from the bowels, subsequently.

'(3.) Preventive inoculation with living cultures may disseminate and perpetuate the disease, because the attenuated vacinal cultures may regain their normal virulence in the bodies of swine after a certain lapse of time.

'(4.) The waves of epizootic which appear to sweep over the country at long intervals may be due to a sudden increase of virulence of the specific bacilli, after they have passed through the body of swine for some years.

'(5.) Pathogenic bacteria are always a menace, and no pains should be shunned to restrict their dissemination and multiplication in every way, by quarantine, by disinfection, and by the destruction of the dead with fire if possible.'

HOG CHOLERA AND SWINE PLAGUE ARE DUE TO DIFFERENT BACILLI.

The two diseases, while distinct, are usually seen conjoined in an outbreak of hog cholera; in fact, Professor Welsh asserts that the bacilli of swine plague are always to be found in throats of swine, but they remain inert, at least non-pathogenic, until the hog cholera bacillus, by its effect on the intestines induces that disease, when they become active, and descend in the air tubes, produce a pneumonic affection to which the name of swine plague has been given. The two diseases thus occurring in the same herd perplex the uninitiated and lead to divergencies of opinion.

SYMPTOMS.

The similarity of the symptons with those of several other swine diseases, render it necessary that post mortems and bacteriological investigations be added to the clinical examination, before a reliable diagnosis can be made.

Thus, gastric and intestinal derangements from hotel swill and kitchen refuse feeding, lung and intestinal worms, swine plague, unsanitary housing, exposure to cold and damp will induce febrile conditions, bronchial irritation and other symptoms seen in hog cholera.

The common symptoms are: Increased temperature, which is variable; intolerance of cold, causing the animals to bury themselves in the litter, from which they are driven with ruluctance; supersensitiveness of the skin, red blotches on the thighs, belly, neck and pubis; watering from the eyes, white at first afterwards becoming purulent; staggering gate, sometimes a cough, which is aggravated when the animal is moved; short breathing, especially when there is also swine plague present; costiveness, followed by diarrhœa in the later stages; increasing debility, and, in young pigs, death after two days' illness.

The mortality is greater in sucking pigs and shoats. In adult pigs, the symptoms are not well defined; in them it assumes a more chronic character. They usually have it in a mild form, appear to recover, but the peculiar button ulcers in intestines continue sometimes for years, rendering the excrement infective.

SYMPTOMS OF SWINE PLAGUE.

The general conditions found in both diseases are the same, the predisposing causes are identical. The bacterial study of them shows each to be due to its own special bacillus, that causing hog cholera being motile in liquids, whereas that causing swine plague is not motile in liquids; and Dr. Veranus A. Moore has shown that in hog cholera bacillus, from three to nine flagella are demonstrated, while no flagella have been found in that of swine plague. These bacilli will live in water from ten to fifteen days, and in soil from four to six days. The same general symptoms prevail in both, the fever, chilliness, sensitiveness of the surface, redness of the ears, legs, belly and pubic regions. The cough is more marked, as is the difficulty of breathing, when the animals are caused to move. There is no diarrhœa, nor such marked debility or reeling gait incident to the disease.

Swine plague attacks young pigs more than adults, while the reverse is true of hog cholera. Practically, however, we find few outbreaks of the one in which the other is not more or less prevalent in the same herd, and often in the same animals, and the post mortem examination frequently reveals the intestinal ulcers and the broncho-pneumonia, the solidification of one or more lobes of the lung which, in some cases, are adherent to the ribs or diaphragm by fibrinous effusion, and occasionally white fibrinous bands on the interlobular tissue give a portion of the lung a well-marked marbled appearance.

COMPLETE RECOVERY CAN SCARCELY EVER BE SAID TO OCCUR.

Even in very mild cases, on post mortem examination, it is invariably found that ulceration of the intestinal coats has occurred, and although cicatrization has taken place to a considerable extent, the pathogenic bacilli will be found in the diseased part of the intestine.

Hence, it will be seen that so-called recovered swine are always dangerous.

The following extract from the report of the Departmental Committee of the Board of Agriculture of Great Britain, appointed to inquire into the etiology, pathology and morbid anatomy of swine fever, 1895, points to this chronic infective form as of frequent occurrence: 'There are also, and always have been, many cases of the obscure chronic form of the disease, in which the morbid changes go on slowly for weeks and months, and finally attain an excessive state of development, without being attended by any of the symptoms which are usually accepted as diagnostic of swine fever.

'Some very important information as to the obscure forms of swine fever was obtained by the committee by the examination of swine which had been isolated for a period of two months on infected premises; at the end of the time they had been

certified to by a veterinary surgeon to be free from swine fever, and would, in the ordinary course have been released. In several of these instances, instead of being released, the swine were, at the request of the committee, slaughtered, and the organs sent for examination. In each set of specimens, characteristic lesions of swine fever were detected.'

FEEDING HOGS ON HOTEL SWILL AND KITCHEN REFUSE.

Certain foods favour the pathogenic power of the bacilli. Hotel swill, although not necessarily producing hog cholera, may contain pork in one form or another, ham, bacon, or sausage, in which the bacilli are present, and may thus be the infecting medium.

The hotel swill barrel often contains soap, polishing pastes and other chemicals and refuse, rendering the heterogenous mixture poisonous and productive of disease, and by inducing gastric derangements facilitates the admission of the infecting bacilli into the circulation.

Most farmers keep a swill barrel in which sour milk and sour whey are collected. To this they add kitchen refuse and such cereals as barley, oats, pease, corn, &c.; not unfrequently animal matter as well. This barrel is left exposed to the sun's heat, with a result that besides toxines and fermentative products, various forms of animal life are developed and, being introduced to the digestive organs, lead to various derangements of the stomach and intestines, presenting symptoms closely resembling swine fever, lacking only the contagious character and post mortem lesions.

VERMINOUS BRONCHO PNEUMONIA.

To such feeding as described can be traced the frequent occurrence of verminous broncho pneumonia, so common in badly-kept pigs, which is often mistaken for hog cholera or swine plague.

We frequently find minute thread worms in the bronchial tubes of pigs, and simultaneously in the intestines, the ova of which are taken into the stomach in such food as above described. The lung worms find the proper location for their development in the bronchial tubes, whence they are coughed up; other worms find a location in the stomach and intestines, whence the ova, escaping in the faeces, are again taken into the stomachs of other pigs; thus they pass from one to another, giving rise to the suspicion that the disease is hog cholera or swine plague, instead of verminous broncho pneumonia. This quite coincides with the observations of the Bureau of Animal Industry, report 1895 to 1896, page 174: 'In many instances pigs die from disease brought on directly by improper feeding, and any disease germs found in one or more of such animals by bacteriological methods may have no direct relation to the disease.

'We may thus have, on the one hand, outbreaks due directly to pathogenic bacteria of a high grade of virulence; on the other, we may have outbreaks due to food unfit to nourish the animal or containing toxic substances. We may also have death due to a combination of these two causes, the one or the other predominating, as the case may be. It is probable from our experience that outbreaks of swine diseases due to the virulence of bacteria alone are rare, and that therefore much prevailing disease may be prevented by attention to the physiological laws governing the body.'

ERRORS IN FEEDING.

If swine feeders would but consider that the stomach and intestines of the pig resemble very closely their own, and imagine the household being forced to eat that which they give to the pigs, from a delicate little suckling pig to the fat hog, they might expect their families, young and old, to be attacked by severe gastric and intestinal derangement.

I would strongly urge that the agricultural boiler be brought more into use by the swine raiser and feeder. Boiling food would at least insure freedom from disease germs and worms.

Great improvements can be made in the manner of feeding corn to hogs. Too often the surplus corn is rooted out of the trough, if such is used, and trampled into the mire, where it undergoes fermentative changes and when afterwards eaten produces gastric and intestinal disturbance. This could be prevented by placing the trough on slatted platforms, made of such a size as would admit of their being moved easily, when necessary for sanitary or other reasons.

The management of hogs requires the application of common sense in the housing and feeding, as does the management of other domestic animals.

Buyers of pork would do well to refuse to purchase it unless they know that the pigs were fed on wholesome food and kept in sanitary surroundings.

HOG CHOLERA AND SWINE PLAGUE ARE COMMUNICATED FROM ONE HERD TO ANOTHER.

1. By *direct communication*, by introducing infective pigs into herds, by sending sows to be bred from one farm to another, and from the infective intestinal discharges of so called recovered sows or boars.

2. By *mediate communication*, by people conveying the infection in their clothing, on their boots, on any utensils or implements, crates, wagons, lumber or fodder, by dogs, carrion birds and, among close neighbours, by rats or other vermin, by infective yards, platforms, railway cars or anything with which diseased animals have come in contact.

During our investigations in western Ontario we have repeatedly observed that this disease spreads rapidly along the banks of a river, due, no doubt, to the practice of getting rid of carcasses by throwing them into the water. This, we have noticed, in large as well as in small streams.

BEWARE OF EMPIRICAL CURES.

In one section of Ontario, much loss has been entailed by quacks selling nostrums, reported to cure the disease. Farmers, as a rule, are too easily imposed upon in this way. Believing in the efficacy of these quack medicines, they commit a serious breach of quarantine regulations in failing to report to the Government the existence of contagious disease in their stock; they often allow the disease to attack their entire herd and, by disposing of partially recovered pigs to neighbours, they spread the disease and cause serious loss to others.

A careful consideration of what is said above as to the infectiveness of so-called recovered pigs will impress all thinking men with the danger arising from keeping such alive longer than to fatten them for slaughter; such should never be sold for removal into any man's herd, even to one's worst enemy, as it may lead to his ruin. *Farmers, think of this!*

PREVENTIVE MEASURES.

Every breeder or feeder of pigs ought to arrange his premises so that he can divide them into perfectly isolated piggeries, so that if, by some misfortune, disease is introduced to one lot, the others may be preserved, through isolation. Breeders and owners would greatly serve their own interests by providing a separate pen as a quarantine pen for probationary detention of all new purchases, in which they would be kept for a few weeks to make sure that they are free from disease.

When the disease has been introduced and discovered in a herd, immediate notice should be given to the Minister of Agriculture, who will cause an investigation to be made, and if the disease is found to be hog cholera, quarantine will be established, the actually diseased pigs immediately slaughtered and the carcasses burned, or deeply buried with lime; all fat enough will be immediately slaughtered and if, on post mortem examination, they are found free from the disease, they will be sold for pork, and the balance fattened as quickly as possible and disposed of if, on examination after death, the flesh is considered fit for food; indemnity being paid for those actually diseased, to

the extent of one-third of their value before they became diseased. For animals in contact, the compensation is three-quarters of their value. Every pig on the farm must be killed and the premises thoroughly disinfected before an inspector can issue an indemnity certificate, which must be accompanied by certificates of satisfactory disinfection; thereafter the Minister will order the removal of the quarantine.

CLEANSING DIRECTIONS.

The flooring, divisions and base boards of the pen should be removed and any loose boards with which the hogs have come in contact, burned; the surface earth or gravel of the pens and yards should be removed to a depth of six inches, freely covered with newly-slacked lime and re-covered with fresh earth or gravel.

The disposal of manure from infected hog pens is seldom sufficiently considered, yet manure is a frequent source of infection. As above stated, the bacilli of swine plague will live in the water from ten to fifteen days, and in soil four to six days; that of hog cholera lives in water two to four months and in soil from two to three months; and in manure they live for an indefinite period, varying according with the season. During the prevalence of these diseases, the manure should be carefully collected from the piggeries and at once mixed with newly-slacked lime, and removed in water-tight wagon boxes to an inclosed yard to which none of the animals on the farms have access. This is the more necessary on account of the impossibility of di-infecting a barn-yard or manure pile during winter weather, or so long as frost continues. When used, it should be ploughed in, not spread as a top dressing. The careless custom of throwing it into a common pile in the barn yard, over which all classes of stock root and trample it down, is one of the means by which the disease is perpetuated and extended.

The bacilli adhere to the hair of the legs of horses and cattle, and by them are conveyed to the streams or rivers at which they drink, rendering the water infective to pigs miles distant.

Sick pigs, if allowed to roam in the barn-yard, under buildings, and to root into stacks of hay or straw, render complete disinfection impossible.

Piggeries should have independent yards, which should be large, with a gentle southerly slope and exposure, and they should be placed at some distance from the barn-yard.

Orchards or small-sized fields should be ploughed after being freely covered with lime.

Lanes and fences should be cleaned in the same manner as the yard; the ground rails of the fences should be burned.

The clothing of all persons who have been attending to or engaged in killing and burning the hogs, should be boiled, and their boots thoroughly cleaned and soaked in a solution of carbolic acid, 1 to 30 of water. The pens, buildings, fences and other permanent structures with which diseased pigs have come in contact, should, when possible, be thoroughly douched with steam or boiling water, scrubbed with a rough brush, and then given a coating of lime wash, to every five gallons of which a pound of commercial carbolic acid has been added. By aid of a spraying pump, cracks and corners may be reached better than by the brush. To be effective, it requires to be done most thoroughly. After cleansing and disinfection, expose the premises to sunlight and air freely for about three months before placing pigs in them again. By some authorities, corrosive sublimate solution, carbolic acid and sulphuric acid, and other chemical disinfectants are recommended. We find the above cheap and easily procurable formula equally effective and more readily made use of by the public.

The following extract made from the report of Mr. M. B. Perdue, V.S., Kingsville, Essex, which has hitherto been the most infected district in the western peninsula, shows the success of the plan followed by the veterinary staff in dealing with hog cholera. He says: 'While the disease is highly contagious, it has been effectually stamped out wherever found by the present method of dealing with it. In no case during the year where premises have been disinfected and released from quarantine have I found a second outbreak among hogs afterwards kept there.'

The same can be said for the Province of Quebec (Annual Report, 1898).

Visiting should be curtailed as much as possible while the disease exists and till the cleaning has been completed, as the disease can be carried on the boots. Horses or dogs from neighbouring farms may carry infection to other farms and should, therefore, be prohibited from entering the premises.

Inspectors should put up notices of infection at the gates leading to farms where the disease exists.

When it is widespread in a district, the district should be close-quarantined and movement of pigs stopped till all infected farms have been placed under control.

There is no other contagious disease of domestic animals that requires, for its eradication, so much persistent co-operation between the owners and the Government veterinary inspectors—whoever trifles with it may as well play with fire among his hay stacks—he is certain to injure himself and very likely to damage his neighbour.

HOW PIGS MAY BE KEPT HEALTHY.

There are no farm animals that can be made to yield as large a profit as well-managed pigs—none that will so readily respond to efforts at improvement, in breeding and feeding— on the other hand, none degenerate so rapidly under a system of neglect and mismanagement. They require warm, dry sleeping places; damp, cold, unsanitary pens are ruinous to the health of pigs. They are the better of exercise in an open straw yard—but they should have a dry, warm, well-lighted pen, with a southern exposure, to retire to. Their food should be sound and sweet, and given at regular intervals. The troughs should be kept perfectly clean by frequent washings. The pens should be cleaned out regularly, as those of cattle or horses.

They should be so constructed that water can be freely employed in washing them out. Thirty per cent creolin solutions should be frequently sprayed over the entire pen.

The young pigs and shoats should be dipped every two weeks in a 10 per cent solution of creolin in tepid water, a barrel of which should be kept in a convenient place. The removal, by this means, of numerous parasites, will greatly relieve the pigs of skin irritation. It will be found that they will thrive much better where this is practised.

The improved sanitation will lessen the tendency to verminous infection, by destroying the ova which, in cold, damp, undrained, consequently unhealthy, corners of underground buildings usually abound.

As treatment of verminous broncho pneumonia by the administration of vermifuge medicines, where large numbers of pigs of all ages are kept is very difficult of administration, owners should do what they can to prevent infection. Spirits of turpentine, in doses varying from 15 drops, in little pigs, to a dessertspoonful in large ones, given in milk well shaken up, twice daily, will be beneficial, especially for intestinal worms. Pine balsam, or resin, may be given mixed in their food—or powdered areca nut, four grains for every pound of the animals weight, in young pigs; in adults, 2 to 3 drachms daily. It is best given in milk on an empty stomach.

For the lung worm affection, turpentine given internally and inhalation of its fumes by burning it on pine shavings, or evaporating it with a spirit lamp in a closed compartment into which the pigs are driven and allowed to remain for a few minutes only, depending on the amount of bronchial irritation produced by the fumes, will destroy the worms and cause them to be coughed up.

This treatment requires great care and judgment to avoid accidents, and if the fumes are strong, it may be sufficient to merely drive the pigs through the compartment.

In this, as in hog cholera and swine plague, 'prevention is better than cure.'

At all seasons of the year, pigs will be benefited by having fresh sods placed in a corner of their pen for them to root among.

D. McEACHRAN, F.R.C.V.S.,

Chief Veterinary Inspector for Canada.

TUBERCULOSIS.

TABLE showing the number of cattle tested in each province during the twelve months ended October 31, 1899.

Province.	Number Tested.	Number Reacting.
Ontario	11,107	130
Quebec	2,154	59
New Brunswick	1,856	41
Nova Scotia	97	7
Prince Edward Island	372	14
British Columbia	112	2
Manitoba	1,109	196
North-west Territories	15	2
	16,822	451

Considering that these animals were tested because they were suspected of being tuberculous, the percentage of diseased ones is extremely small even as compared with the results of the testing during the previous year, when out of 5,698 cattle tested 508 were found to react. This amply justifies us in believing that this bovine scourge is much less prevalent in Canada than elsewhere, and that under the present system it is rapidly lessening; and it strengthens our belief that with a moderate expenditure to enable us to at once get rid of all those showing symptoms, and so presumably infective, fattening the others and quarantining them for life; this disease can be completely eradicated from our herds.

For valuable suggestions as to the prevention of tuberculosis amongst domestic animals, and the use of the flesh and milk of tuberculous animals see 'The Resolutions of the VIIth International Veterinary Congress of Veterinary Surgeons, held in August last at Baden Baden Germany,' herewith appended, also the report of the Pathologist, Prof. J. G. Adami, and his Assistant, Dr. Charles H. Higgins, of the experiments conducted at the Experiment Station at Outremont.

OUTREMONT EXPERIMENT STATION.

The work of this station has been conducted more regularly and much more satisfactorily since the appointment of Dr. Charles Higins, the direction of the station still being conducted by Professor Adami and myself.

By referring to Dr. Higgins' detailed report, it will be seen that while tuberculosis was the principal subject of investigation, other diseases were also dealt with by the pathologists.

TUBERCULOSIS OF THE UDDER ARTIFICIALLY PRODUCED.

In my report for the preceeding year I mentioned the fact that we found a difficulty in finding cows in milk with diseased udders. It was decided, therefore, that udder infection should be produced by inoculation with cultures, (*a*) from bovine tubercle, (*b*) from human, with the view to determine the infectiveness of the two forms of tuberculosis.

The results in each case were similar, viz.:—The production of a localized tumour, attended by a rise in temperature, the swelling being greatest from the bovine culture; and the regular presence of tubercle bacilli in the milk in each case.

LONG INOCULATION BY BOVINE AND HUMAN CULTURES IN HEIFERS.

Two healthy heifers were inoculated, one with bovine tubercle in the right lung, the other with human in the left. The former died from extensive generalized tuberculosis on the forty-second day, whereas the latter, (inoculated with human tubercle), although she contracted the disease, showed slight clinical evidence.

IN GUINEA PIGS.

Five guinea pigs inoculated with bovine cultures died respectively on the 14th, 15th, 20th, 30th and 35th days.

Three in which human cultures were used died in 18, 23 and 36 days respectively, generalized tuberculosis being found in each case.

IN RABBITS.

Five inoculated with bovine cultures died in thirty-six, seventy, seventy-four and ninety days, one surviving 3½ months. Of three inoculated with human tubercle one only contracted the disease, dying in fifty-two days, the other two being alive after two months.

IN CHICKENS.

Inoculations with both bovine and human cultures failed to produce the disease.

INFECTIOUSNESS OF MILK.

Experiments under this head are interesting and instructive and while confirming what is now well known, viz., that milk from a diseased udder is always virulent, they also prove that milk from cows suffering from tubercle of other organs, but without invasion of the udder, may, at times, contain active bacilli.

Two cats which were fed on infected milk, and the flesh of tuberculous guinea pigs, became affected by generalized tuberculosis.

INFECTION THROUGH COHABITATION.

Two healthy heifers which were tied one on either side of a cow which showed but slight symptoms of pulmonary disease, both contracted tuberculosis in 107 days, while a third heifer, kept in an isolated stall boarded in 5 feet high open above to the ceiling, remained healthy at the same date.

TUBERCULIN TESTS.

The experiments confirm the work of last year as to the unreliability of any but the primary tests unless a long period intervenes.

DISEASED TISSUES SENT FOR DIAGNOSIS BY INSPECTORS.

The assistance given to outside inspectors in diagnosing diseases by microscopic and bacteriological examinations made by the pathologists is of great value, and can be rendered more so by inspectors following carefully the directions furnished to them for preserving and forwarding specimens for this purpose. With the opportunities afforded by the station for immediate experiment with small animals, accurate diagnosis can be made with the least possible loss of time, thus enabling the necessary measures to be at once determined in each case.

PICTOU CATTLE DISEASE.

This disease still continues to affect the cattle in certain sections of Nova Scotia, and is being dealt with by Dr. Townsend, D.V.S., New Glasgow, who reports having caused to be slaughtered from November 1, 1898, till October 31, 1899, 112 cattle for which the sum of $800.63 was paid as indemnity.

Strict quarantine measures continue to be enforced, all diseased cattle being slaughtered, the carcasses burned or buried deep with lime and thorough disinfection carried out, an officer being specially employed to see that this is done. So far all our research work has failed to trace the cause of the disease which is purely local and limited in its invasion. Moreover, it is incurable, few, if any, recovering once they are seriously affected.

The figures show a decrease from the previous year's figures of eleven head, and in indemnity paid, of $88.03.

REPORT ON VISIT TO GERMANY AS REPRESENTATIVE OF THE DOMINION AT THE SEVENTH INTERNATIONAL CONGRESS OF VETERINARY SURGEONS HELD FROM AUGUST 7 TO AUGUST 12, 1899, IN BADEN-BADEN, BY D. McEACHRAN, CHIEF INSPECTOR.

In consequence of repeated requests from the chief veterinary adviser of the Board of Agriculture at London, that Canada should be represented at this International Congress, and it having been decided that I should undertake to do so, I sailed from Montreal on July 27, arriving in Baden-Baden in time to attend the meetings of the congress.

The object of this congress was to discuss the following subjects:—

Preventive measures against the spread of epizooties in consequence of international cattle trade.

The prevention of foot and mouth disease.

The newest suggestions for an effectual meat inspection.

Final result of the endeavours to fix a uniform and anatomical nomenclature in veterinary surgery.

Prevention of tuberculosis amongst domestic animals.

The use of flesh and milk of tuberculous animals.

The prevention of swine epizooties.

The extension of veterinary instruction.

MEMBERSHIP OF THE CONGRESS.

The congress consisted of honorary members, members, and members extraordinary. Honorary members being such persons as have received honorary membership from previous congresses, or who, in consideration of scientific labours and services rendered to the profession and to science, are now elected honorary members by the seventh congress.

The regular members are representatives sent by the principal governments to the congress, representatives of high class agricultural institutes, representatives of veterinary societies, deputies of state and town administrations for the care of public health; also state and town hygienic institutions, certified veterinary surgeons, who, like those included in the above, have paid a personal fee of twelve shillings.

Members extraordinary are agriculturists, chemists, and undergraduates of veterinary science.

The proceedings were conducted in German and French, and short interpretations were made in English at the termination of each address.

It was necessary for members of congress, who wished to take part in the proceedings by an address or speech, to give written notice to the general secretary, giving

their names, and titles, when the chairman would call upon them to speak in order of their application.

The principal sessions were held in the large hall of the Conversation House in Baden-Baden, commencing daily at 9 o'clock. A separate room for discussion of the papers was placed at the disposal of each section, and while all members of congress were supposed to be free to take part in the proceedings of the sections, the actual fact is, that the time of the sections was taken up almost entirely by those who had contributed papers upon the subjects under discussion, and by those who by previous arrangements were called upon by the chairman. No doubt some such arrangement as this was necessary, on account of the very large numbers (something near about 600), at the same time, many who would gladly have taken part in the discussions were thus debarred from doing so.

The arrangements of the Congress were very complete, and visiting members enjoyed the greatest hospitality.

A general banquet took place in the Conversation House, which was very largely attended, and in which some very brilliant oratorical efforts were made by members. Various excursions, smoking concerts, and divers festivals, such as bal-paré and other arrangements of this kind were made for the entertainment of the visitors, which were very highly enjoyed by them.

The extracts from the suggestions, and the conclusions of the reporters (those who read the papers), which are herewith appended, will be of value as being the results of the consideration of these very important subjects by the leading veterinarians of the world, and while it will be seen, as was to be expected, that the considerations tended more to what would affect adjoining States in Europe, yet, while not so applicable to insular countries, such as Great Britain, Canada or the United States, yet contain so much valuable information, that I am induced to include these conclusions in full in this report, in preference to substituting my own impressions, which, on account of want of knowledge of German and French, must necessarily be imperfect, and I would take the liberty of calling special attention to 'the newest suggestions for an effectual meat inspection.'

While much progress has been made in Canada with reference to the eradication of diseases of animals, little or nothing has been done in the way of establishing thorough and common-sense systems of the inspection of the animal food of the people. I am glad to find, however, that of recent years, boards of health in various parts of the Dominion are moving in this direction, and I have no doubt that the various boards of health will find the suggestions and conclusions of the highest of the European authorities appended herewith will be of value to them in formulating a code of regulations governing meat inspection within their municipal boundaries.

The subject of prevention of tuberculosis in domestic animals, will also interest every stock owner in Canada, as well as the boards of health, and for this reason I feel justified in including these conclusions by such eminent authorities as Professor Bang, of Copenhagen, C. Siedamgrotsky, Brunn, Stube, Brussels, as well as the suggestions on the use of the flesh and milk of tuberculous animals, by such men as Professor Ostertag, of Berlin, De Jong, Leyden, and others.

Of equal value, too, in my opinion, will be the suggestions with reference to the prevention of swine epizooties, as will also be, for teaching bodies, the conclusions of Prof. Nocard, of Alfort, Schutz, of Berlin, and others, as to the necessity for the extension of veterinary instruction.

I am happy to be able to report that all the addresses and conclusions will be published in book form in three languages, German, French and English, copies of which will be sent to the various governments and their representatives.

In conclusion, I beg to gratefully acknowledge the great kindness and hospitality which, as representative of Canada, I received from the German officers of the Congress, and numerous members of the profession from the various countries of the world.

It was very gratifying to me to have the privilege of renewing my acquaintance with many of the leading veterinarians of Europe, and to make the acquaintance of others whom I had not had the pleasure of meeting before.

I wish specially to acknowledge the kind attention received from A. C. Cope, Esq., chief veterinary adviser to the Board of Agriculture of England, who was indefatigable in his efforts to promote the comfort and pleasure of all the English speaking members of the Congress. Among those with whom I had the pleasure of associating while there, was Professor McFadyean, Principal of the Royal Veterinary College, London, who with Mr. Cope, represented Great Britain at the Congress. There were also, as representatives of societies, Messrs Malcolm, Trigger, Dawes, Bloye, and Johnston, who represented Australia; these constituted the British representatives.

One feature of the Congress was the presence of three Moors, in their Moorish costume, from Morocco. The United States, South Africa, and South America were also represented.

Among the English speaking portion of the Congress, it was suggested that an effort be made at the VIIIth International Congress to have a special section, which would be more particularly of interest to Great Britain and her colonies, as well as other countries situated in insular positions, to discuss from their standpoints the various subjects under discussion by the general congress. It is to be hoped that this suggestion will be carried out, as it would tend to increase the interest of such a valuable congress to a large number of the members who represent countries outside of Europe. The value of such a congress to Canada is much greater than would be at first sight apparent. It was extremely gratifying to me to find from interviews held with numerous members of the congress that this country is becoming much better known, and the great progress made agriculturally and commercially seems to be a source of wonder, and drew forth from many of the members in private conversations enconiums of praise of Canadian enterprise. The magnitude of the territory, the prospective wealth consequent upon our immense resources in minerals, timber, grain, live-stock, &c., seemed to impress these strangers very much.

Compliments were also paid to the country with particular reference to the development of live stock, and live stock industries; dairy products, and the progressive aims of our agriculturists generally in the improvement of the various breeds of farm animals; and our extensive and thorough quarantine system for the prevention of, and the dealing with, contagious diseases of animals in Canada, were also favourably commented upon.

The result of such views held by the members of that great congress, a large number of whom are the advisers to their various governments in all matters relating to live stock and agriculture generally, must be to simplify and improve our international commercial relations with the different European countries represented.

As a matter of fact, much practical benefit in this relation has already been demonstrated, and more is likely to follow, for it can be readily understood that, when the veterinarian is consulted by his government with reference to conditions existing in other countries, he will more confidently and more correctly be able to advise his government with reference to any international arrangement which may be under discussion through his having met and become familiarly acquainted with the persons occupying positions similar to his own in such countries.

I hope, therefore, that Canada will be represented for all time at such congresses, as she cannot well afford to ignore the benefits to be derived therefrom.

RESOLUTIONS OF THE VIIth INTERNATIONAL CONGRESS OF VETERINARY SURGEONS.

I.—Preventive measures against the spread of epizooties in consequence of international cattle trade.

The VIIth International Veterinary Congress considers an effective fight against epizooties, in the interest of the individual States as well as of the public economical welfare, both useful and desirable. The means to be employed are a uniform application of scientific principles and an efficient regulation of the veterinary department, of the intelligence department respecting epizooties, and of international cattle trade.

But the Congress, considering the difference in the economical development and the conditions of traffic as well as the dissimilitude of veterinary organization in the separate countries, does not think the moment has yet come for laying down definite principles of an international agreement.

II.—The prevention of foot and mouth disease.

It is in the interest of an effectual prevention of foot and mouth disease :

(1) By all and every means to prosecute the scientific investigation of this disease ;
(2) To exclude the infected district from free traffic ;
(3) To submit the traffic in cattle for sale to a strict veterinary police control in such a way, that the cattle of cattle-traders should be placed under the inspection of the police before sale ;
(4) That buttermilk and all other remnants of milk should not be supplied habitually from the cooperative dairies until they have first been submitted to such a temperature as shall insure the extinction of infectious matter ;
(5) That the authorities should be required to order in certain cases the slaughter of animals, the proprietors receiving compensation for the resulting loss ;
(6) To regulate in the whole country, as far as possible, the initiation, the continuation and the completion of the needful veterinary police rules, whereby special weight is to be laid upon the strict carrying out of the separation and disinfection of the clothes of the attendants, &c.

III.—The newest suggestions for an effectual meat inspection.

(1) The Congress desires to draw the attention of the Governments of the States officially represented to the necessity of the general introduction of compulsory inspection of meat.
(2) None other than certified veterinary surgeons can be summoned as professional men to inspect meat. In places, where it is still impossible to establish a regular veterinary service, lay inspectors with limited powers may be provisionally appointed. These must be trained for their profession as much as possible by veterinary surgeons in the larger slaughter houses, be examined by the state, and constantly be controlled in the exercise of their function by veterinary surgeons. Only veterinary surgeons should be appointed as professional inspectors of meat and as the directors of slaughter houses and cattle sheds.
(3) Instruction in meat inspection at the veterinary colleges must be improved and extended. Meat inspection should be made as far as possible the object of practical examination for a veterinary diploma.

This examination too must take place for the obtaining of the diploma as a veterinary surgeon. Moreover it is required in this case, that the candidate has worked at least eight weeks in the meat inspection of a large public slaughter house, standing under regular veterinary supervision.

(4) As a mattter of principle, all inspection of meat must be founded on sure scientific bases and experimental rules, which should be agreed upon by an international understanding.

(5.) Inspection must be extended to all kinds of butcher's meat and be introduced everywhere. It must include all beasts for the butcher and every kind of meat, that serves for human food and public use, whether it be destined for public sale or private consumption.

(6) The efficiency of meat inspection is only perfect in those places where public slaughter houses exist together with compulsory slaughter. On that account, their erection in as many communes as possible is advisable.

(7.) It is necessary for the inspection of fresh slaughtered meat coming from outside :—

(*a.*) That the flesh of cattle and horses should be brought in at least in quarters, that of swine only in halves, and that of all other animals in an undivided state, and further

(*b.*) That the most important intestines should be in natural connection with the meat.

Fresh meat introduced from foreign countries is subject to the same requirement.

Preserved meat from foreign countries can only be imported if it is kept in a trustworthy, sanitarily unsuspicious manner and its harmlessness can be affirmed with certainty.

(8.) Meat authorized for consumption after inspection must be marked in a proper manner (stamping, leading, etc.)

(9.) Meat proved to be harmless but of inferior quality must be sold under declaration at certain places ("Freibänke") under the supervision of the authorities.

(10.) The introduction of a universal and compulsory insurance for slaughter cattle under State control is urgently required in the interest of meat inspection and the stamping out of cattle diseases.

(11.) The results of meat inspection should be collected for scientific and economical purposes in statistics arranged on a definite plan, in which international uniformity should be aimed at.

IV.—Final result of the endeavours to fix a uniform Anatomical Nomenclature in Veterinary Surgery.

The Congress agrees to the propositions of the Nomenclature Commission and wishes to employ the money necessary for the place the 2,500 Marks reserved for this purpose. Further needful publication of a Uniform Anatomical Nomenclature : in the first amounts should either be requested from the veterinary societies or paid from the Treasury of the VIIth International Congress.

V.—The prevention of tuberculosis amongst domestic animals.

(1.) The prevention of tuberculosis in cattle is urgently needed.

(2.) The extinction of bovine tuberculosis on the part of the owners (voluntary extinction) is practicable and should be universally aimed at. It demands the slaughter of dangerous tuberculous beasts as soon as possible, as well as careful protection of calves and healthy animals from infection.

The voluntary extinction of bovine tuberculosis should be encouraged by the State through the dissemination of correct views respecting the character of tuberculosis, respecting the modes of infection, and the importance of tuberculine inoculation and be supported by State grants.

The best mean hitherto known for the prevention of tuberculosis among domestic animals is tuberculine.

Tuberculine should only be supplied under State control. In any case it should be given to veterinary surgeons alone.

(3.) A State prevention of bovine tuberculosis is thoroughly to be recommended.

If it is applied with a certain caution, it can be carried out and will hinder the further increase of the disease and will gradually stop it.

The prevention requires :

(a) the obligation of the veterinary surgeon to give the legal notice of every case of proved tuberculosis in the exercise of his practice ;

(b) the quickest possible slaughter of dangerously tuberculous animals (particularly those animals which are affected with mammite, tuberculosis of the matrix, and of the intestines, as well as pulmonary tuberculosis), compensation being granted by the State, and the prohibition of the return of buttermilk from the co-operative dairies, until it has been sterilized.

VI. The use of the flesh and milk of tuberculous animals.

A. Of the flesh.

Granted that a general compulsory inspection of slaughter animals exists before and after slaughter, the following measures are to be prescribed in view of dangers for the health of the people, which may be connected with the consumption of the flesh of tuberculous animals :

(1) Those professional men who carry out meat inspection are expected to examine the slaughtered animals and so to give a guarantee that every case of tuberculosis among the slaughtered animals and in every such case the spread of the tuberculous process will be accounted for with certainty.

(2) The most important part of the meat inspection is the sure detection and the perfectly uninjurious removal of the organs that have been changed by tuberculosis, together with their appendages.

(3) With regard to the flesh of tuberculous animals, the parts affected with tuberculous centres and bound by the corresponding lymphatic glands are to be treated in the same way as the tuberculously altered organs.

If the tuberculous alterations in the meat are confined to the lymphatic glands situated in it, the muscle may, after cutting out the bones, joints, vessels and lymphatic glands and adequate dissection, be handed over, in a sterilized condition, to be used for food.

In the case of fat animals, the melting out of the fat tissue that has been separated with avoidance of the tuberculous centres is likewise permitted.

(4) In the case of local tuberculosis and in that of general tuberculosis healed and limited to the organs of the cavities, the meat may be dealt out raw to be used as food.

If the tuberculous process in the intestines is of considerable extent, the obligation to declare it is to be insisted on.

(5) The whole of the meat, except the melted fat, is to be withdrawn from use as human food, if there exists marked emaciation or the signs of very recent infection of the blood (tumour in the spleen, and swelling of the lungs, liver, spleen, or kidneys.)

(6) In cases where the local character of tuberculosis and the harmlessness of the meat are doubtful (especially when there are tuberculous caverns and incipient derangement of nutrition), the whole of the meat is to be sterilized before being handed over as fit for food.

(7) The sterilized meat and the melted fat is to be sold under declaration.

B. Of the Milk.

(1) The cows, goats, etc., kept for dairy purposes are to be subjected to regular veterinary control.
(2) The milk of tuberculous animals is not to be used for human food, if the animals are emaciated or effected with tubercles in the mammae.
(3) In accordance with the mode of proceeding in the kingdoms of Denmark and Sweden, the emaciated and tuberculous dairy animals are to be immediately removed from the farms and destined for slaughter, compensation being given to owners.

VII.—The Prevention of Swine Epizooties.

(1) Infectious diseases of swine must be combatted separately, by veterinary police, in such a way that swine plague and rouget should be dealt with on different lines.
(2) The veterinary police regulations against swine plague should consist chiefly in the slaughter of sick pigs and in the disinfection of the infected yards. Slaughter is specially recommended in those districts, which are only temporarily infected with the plague.

The various methods of preventive inoculation, which have not yet been sufficiently tested in the case of either of these diseases, are only recommended for those districts, in which the swine diseases have thoroughly established themselves.

(3) In order to combat rouget among swine, besides the general measures of sanitary police, it is to be recommended that all animals exposed to the contagion should be inoculated; the inoculation should take place under the surveillance of the veterinary police.

Lastly, it is desirable that vaccination should be compulsory in places where rouget is constantly reappearing.

VIII. The extension of veterinary instruction.

The Congress resolves:
(1) that the students of veterinary medicine ought to possess the certificate of university maturity;
(2) that the duration of the studies ought to be at least 8 terms;
(3) To impress upon the instruction a more practical direction;
(4) That the study of veterinary medicine ought to extend to all animals useful for agriculture;
(5) That it will be created in the veterinary schools of the sanitary institutes intended for the instruction and experimental study of etiology and prophylaxy of diseases and particularly of epizooties;
(6) That the instruction of meat inspection requires a special instruction of a practical character in the public slaughter house.

IX.—Determination of the Time and the Place of the VIIIth Congress.

The next Congress will take place in 1905 at Budapest. The adherents of the VIIth Congress, that have come from the said city, will be entrusted with the organization of the VIIIth.

SHEEP SCAB.

This disease still reappears occasionally, but to a limited extent. In December, 1898, two sheep were reported to be affected on arrival at Manchester. Our utmost efforts failed to trace it to the farms whence these sheep were drafted.

In January, 1899, it was reported to exist in four small flocks comprising 163 sheep on the Rosebud, northeast of Calgary, but they were quarantined and successfully treated, all but 32 head, which were slaughtered. The number included in the quarantine in this district was 4,782.

In February last the existence of sheep scab on several farms in the Niagara district was reported by Inspector Boulter, which, as will be seen by his report, was completely eradicated.

ACTINOMYCOSIS.

This disease still continues throughout the Dominion. Col. Herchmer reports ninety-eight destroyed and eighty-three successfully treated by the police in the Territories; twenty-nine were rejected by port inspectors, against seventy-one the previous year. Numerous cases have been reported from Winnipeg and other parts of Manitoba and Ontario. It is rarely heard of in Quebec or the Maritime Provinces, except in cattle forwarded for exportation.

GLANDERS.

This disease continues to exist in the Territories owing to importations from the United States immediately south. Col. Herchmer reports 118 glandered horses were destroyed by the police during the year ended October 31, 1899.

As the provincial governments deal with this disease, reports of it, unless specially asked for, are not sent to the department.

ANTHRAX AND SYMPTOMATIC ANTHRAX, OR BLACK QUARTER.

These diseases are rarely met with in the Dominion. A few reports have been received from the Territories. Sixty-nine cattle and ninety sheep are reported to have died from them. Four reports from Ontario and two from Quebec of suspected anthrax show how seldom this disease occurs in Canada. And we must bear in mind that it is quite possible that some of the cases reported would, if properly investigated, prove to have been due to other causes, as in most instances the animals were dead and disposed of before notice was given, the diagnosis in some cases lacks confirmation.

I have the honour to be, sir,

Your obedient servant,

D. McEACHRAN,

Chief Inspector.

The Honourable
The Minister of Agriculture,
Ottawa, Ont.

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